REMARKS

Claims 12-22 are pending in the present application. Applicant has cancelled claims 12-22 and has submitted replacement claims 23-34 to provide proper antecedent basis for claimed elements, to eliminate ambiguity by referring to a pouring process, to provide a list of parameters measured during pouring, to eliminate ambiguity by referring to theoretic calculations, and to relate components of a device of the invention. Support for the reference to a pouring process is found in paragraph 35 of the specification. Support is found in the specification for reference to pouring flow rate (paragraph 2), relative plate displacement (paragraph 3), position of the valve cylinder end (paragraph 35), hydraulic pressure on the valve cylinder (paragraph 35), pressure exerted by the molten metal in the upper vessel (paragraphs 18-20), weight exerted by the molten metal in the upper vessel (paragraph 15), geometry of the upper vessel (paragraphs 18-20), energy used for sliding the refractory plate (paragraph 21), total pouring time (paragraph 22), time of full closing of the slide gate valve (paragraph 22), time of full opening of the slide gate valve (paragraph 22), and number of relative moves performed by the refractory plate (paragraph 23). No new matter has been presented in the replacement claims.

The specification has been rewritten to remove grammatical errors and ambiguous translations. Ambiguities were resolved by reference to the French language priority document. No new matter has been presented in the rewritten specification.

The abstract has been rewritten to conform to MPEP guidelines. No new matter has been presented in the rewritten abstract.

Reconsideration of the claims is respectfully requested.

CLAIM REJECTIONS

35 U.S.C. 103(a) Rejection

The Examiner has rejected claims 12-22 under 35 U.S.C. 103(a) for purported obviousness over U.S. Patent No. 5,772,908 to Richard ("Richard") in view of Japanese Patent Publication No. JP 2003181625 ("the '625 publication"). Claims 12 and 22 are the only independent claims and dependent claims stand or fall with their independent claim. Applicant believes that neither Richard nor the '625 publication, alone or in combination, teaches every element of amended claims 12 and 22, so obviousness does not exist.

Claims 12 and 22 teach a method for making the decision whether to reuse or reject a refractory plate of a slide gate valve used for the control of the flow of molten metal during the casting of said metal from an upper vessel towards a lower vessel. A set of parameters, at least one of them being conventionally measured during the casting, is determined during successive uses of the plate. The determined values are then compared to threshold values.

As is noted in the Declaration submitted herewith, Richard discloses a refractory plate used for controlling the flow of molten metal. The plate is brought into the plant or workshop to inspect for wear. The plate is replaced if it has been damaged. Richard teaches only the determination of parameters that are proper to the plate; none of the factors measured by Richards can be measured while pouring is in process. Richard does not teach the determination of parameters measured during the pouring. The present invention is distinguished from the teachings of Richard by making use of parameters measured during the pouring.

The '625 publication discloses a device for performing measurements on the bore of a plate. The '625 publication teaches the use of a measurement device that can measure an eroding state of a peripheral part of a through hole of a plate and can properly judge the degree of damage of the plate.

As is noted in the Declaration submitted herewith, the '625 publication does not require disassembly of the device housing the plate, but does not teach the use of a measuring device that could be used during the pouring process. Furthermore, the linear measurements performed by according to the '625 publication are proper to the plate. The '625 publication does not teach the determination of parameters measured during the pouring. The present invention is distinguished from the teachings of the '625 publication by making use of parameters measured during the pouring.

Combining Richard and the '625 publication would, at best, produce a device or process for measuring a parameter intrinsic to a plate, and deciding whether to replace the plate on the basis of this measurement. The combined art cited teaches only the use of a single measurement rather than the plurality of measurements that is required in the present invention. Furthermore, neither of the references cited teaches the use of parameters measured during the pouring as a factor in the process of deciding whether to replace a plate. The combination of Richard and the '625 publication does not teach the determination of a set of parameters, at least one of them being measured during the pouring, during successive uses of the plate.

Neither Richard nor the '625 publication suggests, alone or in combination, the device or method of the present invention. The methods of Richard and the '625 publication require actual inspection of the plates between two casting operations; these operations cannot be performed above a tundish or when a ladle is full of steel. The method of the '625 publication requires interrupting the casting operations to introduce the measuring instrument to measure the wear of the plate bore. The claimed method of the present invention makes use of physical parameters that can be obtained during the pouring process. The operator making use of the present invention is therefore in a position to decide whether to keep or reject the plate without even having to approach the ladle.

Applicant respectfully submits that claims 23-34 are patentable over the prior art. Early and favorable action is earnestly solicited.

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